

Cambridge University Press 978-0-521-61324-8 — Automata Theory with Modern Applications James A. Anderson Index More Information

Index

accepted	codomain, 12
PDA, 90	combinatorics on words, 210
alphabet, 23	concatenation, 23
automata	congruence, 19
pushdown, 90	conjugate words, 224
automaton, 37	context-free gramar, 127
acceptance states, 37	context-free language, 127, 149
accepted by, 38	context-free languages
accessible, 73	decidable, 208
deterministic, 41	deterministic, 211
intrinsic, 74	pumping lemma, 163
language accepted by, 37	context-sensitive grammar, 127
minimal, 73	cylindrical language, 218
pushdown, 89	
sink state, 39	decidability
state diagram, 38	context-free languages, 164
syntactic monoid, 74, 75	regular languages, 86
transformation monoid, 78	deterministic automata, 41
transition function, 37, 41	deterministic PDA, 91
axiom system	deterministic Turing machine, 170
Gödel-Hilbert-Bernays, 1	disjoint, 9
Russell-Whitehead, 1	domain, 12
Zermelo-Fraenkel-von Neumann, 1	
	equivalence
Burali-Forti, 1	relation, 9
Cantor, Georg, 1	flag, 223
Chomsky normal form, 138,	language, 223
144	word, 223
code, 26	function, 12
biprefix, 26	bijection, 13
block, 26	codomain, 12
infix, 26	domain, 12
prefix code, 26	image, 12
suffix code, 26	injection, 13
uniquely decipherable, 26	preimage, 12



Cambridge University Press 978-0-521-61324-8 — Automata Theory with Modern Applications James A. Anderson Index More Information

254 Index

function (cont.)	mapping, 12
range, 12	Mealy machine, 102
surjection, 13	minimal automaton, 73, 74
	modified correspondence system, 200
grammar	modified Post's Correspondence Problem
Chomsky normal form, 138	200
context-free, 127	monoid, 16
Greibach normal form, 138	Moore machine, 99
leftmost derivation, 140	mutually exclusive sets, 9
grammar, 114	
context-sensitive, 127	nondeterministic automata, 41
corresponding tree, 123	nondeterministic Turing machine, 190
formal, 115	
language generated by, 115	partial ordering
nonterminal symbols, 115	relation, 10
phrase structure, 115	partially ordered set
productions, 115	greatest lower bound, 11
regular, 128, 129	least element, 11
start symbol, 115	least upper bound, 11
terminal symbols, 115	partition, 10
Greibach normal form, 138, 148	Post's Correspondence Problem, 200
	match, 200
halting problem, 195	modified, 200
homomorphism	preimage, function, 12
mortal, 30	primitive word, 210
vital, 30	pumping lemma
	context-free languages, 163
ideal, 19	regular languages, 84
idempotent, 18	pushdown automaton, 89, 90
image	1
function, 12	range, function, 12
intrinsic automaton, 74	recombinants of molecules, 235
,	regular expression, 24
Kleene star, 23	regular grammar, 128, 129
Kleene's Theorem, 52, 68	regular language, 25
	pumping lemma, 84
language, 24	relation
almost bounded above, 220	equivalence, 9, 10
almost cylindrical, 220	retract, 29
almost eventual, 220	key, 31
almost uniformaly bounded above,	key code, 31
220	key word, 31
almost uniformly eventual, 220	retraction, 29
bounded above, 219	right ideal, 19
context-free, 127, 149	Russell, Bertrand, 1
cylindrical, 218	rtassen, Bertama, 1
eventual, 219	semigroup, 16
sketch equivalent, 222	semilattice, 18
sketch parameter, 221	lower semilattice, 11
uniformly eventual, 219	upper semilattice, 11
left ideal. 19	semiretract, 35



Cambridge University Press 978-0-521-61324-8 — Automata Theory with Modern Applications James A. Anderson Index More Information

Index 255

set, 1	splicing scheme, 236
cardinality, 4	splicing system, 236
Cartesian product, 5	stack
element, 1	LIFO, 89
power set, 5	pop, 89
relation, 6	push, 89
set difference, 3	pushdown, 89
subset, 2	string, 23
symmetric difference, 3	concatenation, 23
set properties	support of a language, 217
associative properties, 4, 6	syntactic monoid, 74, 75, 242
commutative properties, 4, 6	
complement properties, 4, 6	transformation monoid, 78
de Morgan's laws, 4, 5	Turing acceptable, 195
distributive laws, 3	Turing decidable, 195
distributive properties, 6	Turing machine, 170
double complement, 4, 5	configuration, 172
idempotent properties, 4, 5	crash, 173
identity properties, 4, 6	crashes, 171
set relation	deterministic, 170
disjoint, 9	halting problem, 195
function, 12	hang, 173
mutually exclusive, 9	language accepted by, 180
sketch function, 218	nondeterministic, 190
spectral partition, 216	Turing acceptable, 195
spectrum, 214	Turing decidable, 195
splicing, 232	word accepted by, 180
spliced, 233	
splicing language, 236, 239	undecidable
reflexive, 242, 244	context-free languages, 208
splicing rule, 236	uniquely decipherable code,
action, 236	26
radius, 236	
respects language, 236	word, 23